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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,079

12/16/2004

Michie Sakamoto

042890

3428

38834 7590 12/27/2006
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EXAMINER

LISTVOYB, GREGORY

ART UNIT

PAPER NUMBER

1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/27/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/518,079

Applicant(s)

SAKAMOTO ET AL.

Examiner

Gregory Listvoyb

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3116165

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 6 rejected under 35 U.S.C. 102(a and b) as being anticipated by Ando et al (Polymer for Advanced Technologies, 12, 319-331) herein Ando as evidenced by Matsuura et al (Macromolecules, 1991, 24, 5001-5005) herein Matsuura.

Ando discloses fluorine containing polyimides with $n_x=1.489$, $n_y=1.588$ and $n_z=1.641$ (Page 322), which were imidized (cured) at 380C.

Matsuura evidences that 100% imidization for those polymers takes place at temperature over 200C (Page 5004).

Claims 1-16 rejected under 35 U.S.C. 102(b) as being anticipated by Murakami (US patent 7128952).

Murakami discloses a polyimide and a method of synthesis and film preparation from a polyamic acid. The polyimide has a weight-average molecular weight (M_w) of 110000, which is first synthesized from 2,2'-bis(trifluoromethyl)-4,4',5,5'-biphenyl tetracarboxylic dianhydride and 2,2'-bis(trifluoromethyl)-4,4'-diaminobiphenyl,

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and then a 10 wt% solution of this polyimide was prepared using cyclohexanone as a solvent. The optical characteristics of the final film satisfies the equation $n_x > n_y > n_z$. (Example 1, column 27).

Although Murakami does not explicitly teach that the above polyimide is 100% imidized, he discloses that the above polymer is exposed to the temperature up to 250 C. (Column 14, line 55), meeting the limitation of Claim 13. It is inherent, that at this temperature polyimide is fully cured.

In reference to Claim 5, Murakami does not measure mechanical properties of the above polyimide. However, since the polymer, disclosed in The Application and in the Reference are identical, Murakami's polyimide inherently meets the limitation of Claim 5 on fracture strength.

Regarding Claims 6-11, Murakami teaches an optical film or multi-layered laminate suitable for optical compensation of a liquid crystal cell. (Column 1, line 5, Column 27, Example 1). The polyamide film is stretched to satisfy in-plane birefringence conditions ($n_x > n_y$). (Example 1, Column 27).

Regarding Claim 13, the film is dried at temperature within the range 60-250C.

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Regarding Claim 16 and 17, the plastic base is Triacetate Cellulose (Example 1, column 27).

Claims 1, 9, 12, 14 and 15 rejected under 35 U.S.C. 102(b) as being anticipated by Murakami (US patent 7128952), evidenced by Brandrup et al (Polymer Handbook, Fourth edition, John Wiley and Sons, 1999, page VII/689), herein Brandrup.

Murakami uses Cyclohexanone as a solvent of a polyamide solution.

Brandrup evidences that the value of a solubility Parameter for Cyclohexanone is 20.3 Mpa^{1/2}.

Claim Rejections - 35 USC § 102/103

Claims 1-2, 4-10, 12-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Ezzell (US Patent 5969088) evidenced by Ando.

Ezzell discloses a fluoro-containing polyimide and a method of synthesis (Example 1, column 14) and film preparation from a polyamic acid (Column 12, line 65) with further drying the film at 80C.

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The polyimide has a weight-average molecular weight (M_w) of 163000. Cyclohexanone can be used as a solvent (Column 8, line 30).

Ezzell does not explicitly teach about degree of imidization. However, the reference discloses a chemical imidization procedure (Example 1, Column 14), which allows to fully complete the process (imidization temperature of 120C vs 100C in the Application, where imidization is between 98 to 100%).

The Ezzell's optical film for liquid crystal display can be prepared by applying polyamic acid on Polystyrene, Polyester or Polycarbonate (Column 8, line 50).

Ezzell fails to disclose that $n_x > n_y$, whereas he discloses that $n_x > n_z$. As evidenced by Ando, in-plane birefringence ($n_x > n_y$), typically occurs during film preparation, when polyimide macromolecules orient along the drawing direction (Page 320).

In order to prepare a polarizing film, it would be obvious to a person with ordinary skills in the art to biaxially stretch Ezzell's film to increase the difference between n_x and n_y .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb
Examiner
Art Unit 1711



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700

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